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Happy New Millennium!

By Kyle Shackelford, President ACDM

After agonizing over what to write about in this the first issue of the new millennium, I was greatly relieved to get an email message from the *ACDM e-Group* providing the answer. The message was from one of our members asking for some information about software CM because they had a job interview in less than a week. The two responses that captured my attention were respectful, well thought out, and offered encouragement to someone trying to make the conversion from Hardware to Software CM. One answer provided excellent recommendations for sources of information. The other cautioned that while the basics between hardware and software CM were the same, many nuances existed and that mastery of the subject could not be obtained in a matter of days. It occurred to me as I observed the process, that I had found my message.

As we enter the new millennium, and witness the monumental changes in our profession, it is becoming increasingly clear that the Configuration and Data Management challenges we will be facing are growing exponentially and that no single individual has all the answers. It is easy to imagine that many of the skills we use today will be obsolete within 10 years, that the tools we use will be obsolete in less than 5 years, and that the complexity of the information we have to manage will quadruple in 10 years. It is also possible to see the opportunities that this situation presents for those willing to prepare.

So where do you go to get the information you need to succeed?

This is the real purpose of ACDM. To provide the forum where we as professionals, can pose these types of questions and have an open and honest sharing of viewpoints, ideas and recommendations, so that together, we can discover the answers.

My advice is to use this New Year, as a time to evaluate your skills and your knowledge, and make some decisions about your future.

Make plans now to attend the ACDM Conference in March
<http://www.config-mgmt-solutions.com/>

While at the conference, take a look at the software tools and speak with the excellent group of exhibitors that will be attending. Attend the presentation and take part in the panel discussions. See what is going on outside your industry and area of expertise. Build the network you will need to succeed. Consider taking some of the training courses that will be conducted after the conference. Learn how to set up an interest group. Do something now to insure that this indeed is a happy millennium. I look forward to seeing you there.

Upcoming events:

ACDM Board Nominations 1st Quarter 2001
ACDM Conference March 2001
ACDM Board Elections

2000 – 2001 National Officers

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acdm journal

Editor: Mary Shack

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ACDM Board Nominations

By Sam Packer

ACDM has started the new officer election process. This is considered a valuable step to find members who will accept a nomination and become more active in the association. Yes, you may nominate yourself.

Your ACDM Board is a service to the membership. We are there to conduct regular administrative duties and strategic steps toward the running of this successful organization. The Board members are elected volunteers who wish to make a bigger impact to the ideals of configuration and data management. The positions are - President, Vice-President of Education, Vice President of Services, Secretary, Treasurer, CM chairperson, DM chairperson and Board of Governors.

What commitments should you look forward to?

- ACDM member in good standing, dues paid
- Able to serve a one year term: July 1, 2001 - June 31, 2002
- Able to dedicate your personal time to accomplish ACDM tasks
- Able to attend a minimum of 3 executive board meetings during your term (locations vary)
- Have support of your management and company to serve as a National Board Member that may include time away from work and travel expenses.

As I stated earlier, you may either be nominated by one of your peers, or you may nominate yourself. If someone else nominates you, you will be contacted for permission to run. Please give serious thought to becoming more active in the ACDM association. If you have any questions, please call me at (303)971-5036, or e-mail me at samuel.h.packer@lmco.com.

Plan to Attend ACDM'S

6th Annual Technical & Training Conference

***"Configuration and Data Management:
Strategic Components for Improving Business Processes"***

When: March 26 – 28, 2001

Where: San Diego, CA

~ HOTEL: Shelter Pointe Hotel and Marina ~

***To request a Registration and/or Abstract Submittal form, as well as view up to date conference information,
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Data Management Update

By Cynthia Hauer

As I wrote you in our last Journal, we are making great strides in the world of DM, and working hard to make it become the discipline that it must become to support technology integration, competitive edge, effective tool development, and standardization of processes and procedures.

Data Management must evolve to a different plane – one that acknowledges and encompasses the role, domain, and dominion of data in an information society. Global trading issues are raising enormous challenges in data – notably, intellectual property issues, trademarks for data and products, new distribution statement requirements, and interface issues for global trading partners. Those of us who have worked for a long time in DM have known for some time that other elements of our organizations – Legal, Contracts, Engineering, and Information Technology – had seized the mission for working these kinds of issues. But we didn't get much done to resolve them while they held the high ground. We have always know why that was, and now those organizations do, too.

As we move to more sophisticated technologies, tools, and domains in Knowledge Management, Knowledge Engineering, and data mining, we will first have to solve the essential and fundamental problems that Data Management is uniquely positioned to address and solve. Without effective DM, the digital mass that currently resides out on the Internet (and on your desktop machine) flounders in efficacy for lack of effective and efficient techniques in managing data. Each day, it resembles more and more, the virtual versions of the old disorganized filing cabinets and desks that we used to have. Only this time, the rate and amount of data that is accumulating cannot be limited to the physical size of your desk, drawers, and filing cabinets! We are talking gigabytes instead of filing cabinets. Databases that can handle enormous loads of data lack metadata development, effective search and query mechanisms, and establishment of relationships in the data that is housed within them. We waited for the software developers and engineers to provide that structure – and it hasn't happened. Using a database has become a nightmare for some: stuffing the data into n number of tables that are not normalized, interrelated, defined, and which have no metadata has become a frustrating disappointment to users. PDM systems and CM systems (and all of the other tools that are appearing each day from software vendors) suffer from poor management of data techniques. Those techniques that have been and must continue to be developed in the future are completely dependent upon mature, well-understood, consistent data management processes.

From 22-25 January, the GEIA G-33 committee will be meeting to continue this work, in San Diego, California. We have an outline from which to begin, and are currently developing a synopsis of the content, direction, and intent of the chapters/sections. Realizing that many of you do not have the time or the budgets to attend, I want to extend to each of you a special invitation to help us in other ways. By relying on the virtual environment that allows us to participate from a distance, you can: take section headings to develop draft text, portray concepts graphically (so that the engineers can understand the processes, since reading is not always their favorite method of communication!), integrate text, work on syntax issues, contribute core processes that are either common to all DM organizations or else highly unique to your particular organization. If it's a need to you, then it's a need to your community of practice!

Some of you have answered the call for assistance, by volunteering your time and expertise to assist in the ACDM review of the EIA-Standard-859, Industry Consensus Standard for Data Management. Thank you! That text should be ready for preliminary review in early February. There is still plenty of time for those who have not yet responded to help us!

The general agreement, as we move forward, is that the standard will be a core DM processes document, consisting of those processes in DM that are already or are emerging as critical tasks and fundamental principles for Data Management in a digitized environment. For segments of industry or government that have unique requirements, we will be developing interfaces that will assist them in customizing and better utilizing the core processes. The schedule calls for release in October 2002, though everyone is working to a more aggressive schedule than that if at all possible. Your help would speed that completion and release date!

Time is the most precious commodity we have, and "time" is the factor in developing and releasing what we hope will become a guide to DM that will assist you in your daily work, assist you in communicating to others in your organizations what it is that you can do for them, and illustrating to your management chains how and what you can contribute to your organizations. If you will contribute some of your time to this effort, I promise you that I will do all I can to see that you receive more than what you contributed in benefits.

As we move into the new millennium, I look forward to working with you through ACDM, I look especially forward to seeing your emails indicating your commitment – however large or small – to helping us with 859. And most of all – I hope to see you at the ACDM Conference 2001 in San Diego. Don't forget that you can provide yourself with countless opportunities in learning from presentations, training, and networking at the Conference!



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THE NEW MILLENIUM AND CONFIGURATION MANAGEMENT...

”ARE YOU READY?”

By John Corcoran

When I came into this business in 1962, the United States had just embarked on the unbelievable task of designing, developing, fabricating and testing and deploying a manned mission to the moon. I joined North American Aviation, the Prime Contractor for SATURN/APOLLO as an Engineering Planner and moved quickly to Configuration Management a unit within Systems Engineering where I became a unit supervisor over Status Accounting. We worked to NPC500-1 a NASA version of the AIR FORCE SYSTEMS COMMAND AFSC375-1, which among other things covered all things having to do with CM.

It was an exciting time, inventing processes and procedures that would assure that the whole job was done in the rush to be “first on the moon”. This was in the days of maintaining release logs in big black books with each CM analyst responsible for not only CM, but schedule performance too. We were still doing everything by hand when I first came aboard; keypunch cards, reports generated by “Plug Board”, and later, loading forms for the IBM 360 “Random Access “ computer (which required herds of trained personnel to manage, manipulate and mangle). The CCB was run by a large group of really old Engineers in a smoke filled conference room ...you better have your change package complete, including pricing and schedule with Manufacturing need dates negotiated or the poor change analyst (a CM'er) would be thrown out on his ear. Configuration Control was so “hands on”, there were about 125 of us in the organization.

Times change, there have been many ups and downs over the course of the last 38 years. One thing has been constant: “ You have to do more, better with less.” But until the last 10 years or so, that meant that you had to design, code and debug your own system for doing the Configuration Management task. The practice did not improve much until the ORACLE DBMS came along (my opinion) and still you had to convince Management that you needed to spend contract dollars to develop a system and then fund the maintenance. By developing your own system, you were able to reduce somewhat, the group headcount by automating some of the more labor-intensive activities within CM. And Management wanted still more reduction. And, of course, the Secretary of Defense, Bill Perry, in August of 1994, launched the drive to kill the entire Mil Standard and Specs and initiate “Acquisition Streamlining” which made everyone panic (this is an article all by itself) and run for cover. Our Mil Std 973 was finally cancelled in September with no replacement. ANSI/EIA 649 and ISO 9000 (ISO1007 andISO12207) will have to take up the slack.

To me, the most important happening in our discipline is the push in the software arena to mature and stabilize the development processes for software. Carnegie Mellon University's Software Engineering Institute's approach is to develop a “Capability Maturity Model” which defines a company's process by level, 1 through 5 from “writ on stone tablets to totally institutionalized process and procedures. Software Configuration Management is identified as one of the “Key Process Areas”. This CMM level x has taken on a life of its own with more and more importance being realized at the company and the customer level, to wit: “if you are not at least level 3, don't bother to bid”. Level 3 is the level at which a company is considered to have all of the necessary processes in place, with its personnel trained to use those processes in a manner that allows the company to produce a stable product. The thing about all of this is that it moving from software only to hardware as well. So the process question and the training question seems to be in order. What about systems? And CM finally becomes recognized as part of the solution, and not part of the problem.

With the advent of the Internet in the past several years and its exponential growth of usage of the WEB in the industrial world both as a medium of communication externally and internally (intranet), many vendors are offering products that totally integrate all of the life-cycle processes involved in supporting products in an ever increasing “World Community.” And they are” building in” the CM process to the point that CM is now recognized as a function of every discipline from Engineering to Materials to Production to Quality Assurance and Logistics.

My whole point was and is to show that we, as Configuration Managers, are no longer imposed on operations, but as a result of the evolution of the business environment: “Quicker, Cheaper, Better”, have become recognized team members.

The new Millenium promises to bring focus to many emerging technologies, from hand held digital assistants that load databases and transmit streams of information to faraway places to tools of instant collaboration between companies and customers. The new Millenium will require totally capable, versatile, proactive CM'ers. Are You Ready? I've already gone back to school!

The ACDM Conference in March of this year will emphasize some of the lessons learned over the past year and will introduce you to new ways of “thinking out of the box”. CM, as seen from military and commercial, as well as foreign points of view will be discussed at length. You should plan to attend.



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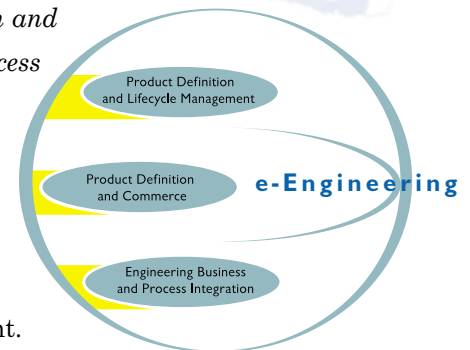
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Configuration and Data Management: Strategic Components for Improving Business Processes

By Dick Carlson

Our theme for the ACDM 2001 Technical and Training Conference is a very significant aspect in the way businesses operate today. We all know how important it is to build and maintain integrity and quality into our products or services, but do we know how important it is to incorporate these attributes into our daily business processes? This is a loaded question. If we all did this, every business would function and operate at maximum efficiency and effectiveness. Since very few businesses actually do this each and every day, it is safe to assume that most of the companies that we work for have a lot of room for improving the way business is conducted throughout the enterprise.

Applying the underlying principles of the disciplines of Configuration and Data Management will not by itself make our organizations better, improve production, reduce defects and waste, or improve our jobs. It's going to take a significant amount of resources (money and people), dedication, training, and practice to make this happen. Then when and if it's done, there's the issue of maintaining momentum. If you have been relatively current on what has been happening during the last 10 years or so, you will know that there are some serious process improvement initiatives underway - ISO9000, the Software Engineering Institute's Capability Maturity Model, and many others. These standards were developed with specific intent – to improve the quality in product, customer trust, and the workplace.

So how does CM and DM fit into all this? In any program or project, there is a need to plan, organize, manage, control, maintain, identify, track, account for, and/or review the research, product, or services rendered. Whether intentional or by accident, any or all of these business processes exercised during the course of the program or project involved CM and DM activities.

We might even say that CM and DM are some of the most important tools management can have to ensure the integrity and quality of products and services. By implementing well-conceived CM and DM procedures, we enhance our business methods, increase our familiarity with specific practices, and thus improve overall business processes. Many of us do this routinely every day and take for granted that these processes will continue to support business needs, while the rest of us know that in order to ensure integrity and quality of products and services, we need to look for ways to improve these processes in a way that not only helps our departments or specific activities, but other activities throughout the entire enterprise. But wait, there's more! When we as CM and DM practitioners, that is the doers of the processes, get involved with the rest of the enterprise to help improve things, we are in fact becoming a more important and valuable resource. We also draw attention to the fact that with CM and DM, the integrity and quality of the product or service becomes more apparent. Without the influence and involvement of CM and DM, management begins to understand the profound and adverse impacts that are inevitable.

Bottom line is this: Look for opportunities within the training tracks of the ACDM 2001 conference to help you acquire the "tools" you need to identify the Strategic Components for Improving Business Processes for your enterprise. Attend the conference and understand your full potential as a CM and DM professional. Participate in discussions - network with peers and some of the industry's CM and DM 'movers and shakers' – find out what tools you need to help you improve your business processes – then look for opportunities in which you can help your company improve its products or services.

I look forward to meeting each and every one of you at the conference.
There is still time to register, and bring a friend!

Don't forget to submit the ACDM Board Nominations Form

What: Nominate yourself or a respected colleague for a position on the form
How: Complete the last page of this journal, print out the page, and mail to Sam Packer
When: Nominations must be received by March 4th of 2001.

~ !See article on page 4 for details! ~

CM & DM in an ISO R&D Environment

By Sandra L. Crowley

ISO 9000 – a common buzzword in industry is making inroads to government agencies. The National Aeronautics and Space Agency (NASA) achieved ISO 9001 certification at each of its nine (9) Centers and Headquarters in 1998-1999. NASA Glenn Research Center (GRC) was recommended for certification in September 1999. Since then, each of the Centers has been going through the semi-annual surveillance audits. Growing out of the manufacturing industry, successful application of the international quality standard to a research and development (R&D) environment has had its challenges. This paper will address how GRC applied Configuration Management (CM) and Data (or Document) Management (DM) to meet challenges to achieve ISO certification.

One of the first challenges was to fit the ISO 9001-1994 elements to the GRC environment. Some of the elements fit well—Management Responsibility (4.1), Internal Audits (4.17), Document and Data Control (4.5). Other elements were not suited or applied easily to the R&D environment—Servicing (4.19), Statistical Techniques (4.20). Since GRC “builds” only one or two items at a time, these elements were considered not applicable to the environment.

GRC also relies on key processes not covered by the ISO 9001 standard—library services and research. This, coupled with the impending revision of the standard, posed another challenge. GRC chose to pursue a Business Management System (BMS) approach that mapped to the Center’s strategic management process. The BMS is composed of four (4) functional areas:

Center Planning and Directing (1.0) – Procedures for Mission and Enterprise support planning, institutional investment planning, and quality system planning

Program/Project Management (2.0) – Procedures for transforming customer requirements into deliverable products and services.

Institutional/Resources Management (3.0) – Procedures for managing the Center’s resources and capabilities for program and project utilization, including technical capability, facilities, personnel, and information technology systems.

Center Performance Evaluation (4.0) – Procedures for evaluating the performance of the Center and the Business Management System itself.

Fitting the ISO 9001-1994 elements into the BMS structure was not always easy, but the structure is more in sync with ISO 9001-2000. Some additional procedures will be needed to be in compliance with the new version of the standard. Though few in number, the new procedures may be difficult to implement since they involve measuring processes and customer satisfaction that are not currently done.

With the BMS structure in place, a document hierarchy needed to be addressed. But first things first—a quality policy needed to be established. The Center’s senior staff agreed upon:

GRC Quality Policy

Our commitment to innovation and continuous improvement ensures quality products, excellent services, and satisfied customers.

This policy is found in the top GRC BMS document: Glenn Research Center Business Management System Quality System Manual. It is here that the document hierarchy and each of the ISO 9001-1994 elements are addressed.

Continued on page 12

GRC created Center-Level Procedures (CLPs), Lower Level Procedures (LLPs), Work Instructions (WIs), and Records. Procedures are processes that are cross-functional in nature. CLPs are those procedures that are utilized at the highest levels of the Center and apply to personnel across the lab. If an organization has a unique process or has a more stringent process than the CLP, an LLP is created. WIs are processes that are one-person one-task in nature and are linked to either a CLP and/or LLP. At the base of the document hierarchy is the category of records—all the evidence that procedures/work instructions are followed.

Another challenge in this area was what to do with the existing NASA Policy Directive (NPD) and NASA Procedure and Guideline (NPG) documents. These were treated as external documents. GRC also maintained Glenn Policy Directive (GLPD) and Glenn Procedure and Guideline (GLPG) documents that flowed NPD/NPG requirements to the local Center. These were incorporated into the BMS structure. Both are referenced within the CLPs and LLPs, as required.

So, what do CM and DM have to do with all of this? For ISO certification, CM and DM apply to processes, documentation, and data. Certification requires three occurrences:

Document what you do
Do what you document
Have evidence (records) to prove it

Simple? Logical? Right!!!! Then how come the majority of findings in ISO 9001-1994 audits were against element 4.5: Document and Data Control? Because CM and DM requirements are woven throughout the standard. 16 of the 20 elements state: “The supplier shall establish and maintain documented procedures . . .” The Document and Data Control element is no exception. The first sub-element carries the documented procedures statement. The second sub-element specifies approval and issue, an index of current documents, and removal of invalid and obsolete items. The last sub-element addresses document and data change. Further, without records (data), it is not documented, it did not happen. Element 4.16 is a separate element that addresses the control of quality records. These requirements cannot be met without effective CM and DM.

Here is how GRC applied CM and DM basics to ISO 9001 certification.

Identification: The BMS and documentation pyramid were created as noted above; however, no numbering scheme was established Center-wide. CLPs carry the prefix LeR-P and a number based on the section of the BMS. More recent CLPs carry a GRC-P prefix because the Center changed its name from Lewis Research Center to Glenn Research Center in the midst of our preparation for ISO certification. Each organizational area of the Center developed its own numbering scheme; though there are variances, many organizations used the “LeR-P-organization code-sequence” number format. The requirement is that each item is uniquely identified.

Control: Five CLPs exist on this subject: 1) Business Management System (BMS) Document and Data Control establishes roles and responsibilities, 2) Creation and Revision of Center Level Procedures, Lower Level Procedures, and Work Instructions defines the change and release process, and 3) Forms Management addresses forms control, 4) Agency/Center Directives provides management with an organized, uniform method for issuing and maintaining policy, and 5) Records Management establishes a consistent method for managing records.

A Change Request (CR), a controlled form, is utilized to process changes to documents via a primarily manual process. The signed form, maintained in hard copy, is extremely important. The signature on the CR not only approves the CR, but the document as well. GRC has taken the signature cycle out of the document release process. No signature exists on the document itself—only “Approved” and the title of the Approving Authority. The approving signature exists on the hard copy of the CR maintained in the Document Administrator’s records.

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Repository: GRC chose to use Open Text's Livelink product for its repository and master index. This tool selection was in line with NASA-wide initiatives. There are two sides, if you will, to the tool. One is the Enterprise side that contains PDF formats of BMS documentation that is available to all GRC personnel for reading and printing. This gets the CM and DM functions out of the printing and distribution business. The other is the Project side that contains the native format(s) of the documents and has controlled access. The challenge is to make sure the document release/obsolete process addresses both sides for any change. This distributed control system is maintained by trained document administrators who control organizational documents within the system. Each organization has a least one individual functioning as a document administrator—including a Center-level document administrator who controls the CLPs.

The repository provides the latest version to all GRC employees who can get to a computer. The electronic format of the Word/FlowCharter document is the master format. Copies are produced by individuals from the master index and carry a disclaimer in the footer of each page of all CLPs, LLPs, and WIs:

Printed copies are uncontrolled and are not to be used for operational purposes

For those who do not have access to a computer, a controlled set of hard copies is maintained. If printed copies need to be used for operational purposes, this footer is omitted from the document.

Applicable Documents outside of CLPs, LLPs, and WIs are accessible via URL hyperlinks to the electronic location that are added to the master index in Livelink. There is also a Livelink entry type that adds data about pure hard copy documents. This allows for a complete master index.

Status Accounting: A Change Request Log is maintained by each Document Administrator and is available in the master index on Livelink.

So, where is GRC today? Results of internal audits indicate GRC has many of its findings in the Document and Data Control element. Generally, these have been quick fixes rather than systemic problems; the last surveillance audit produced no findings in this area. Internal audits will assure document and data control issues stay in check. The role of the Document Administrator is vital to working these situations, and new Document Administrators need to be suitably educated and trained. Personal experience indicates that those with a CM/DM background understand documentation needs more than those without.

One challenge is to maintain focus after the initial certification audit. As in most organizations, there are those that feel the "box" is "checked" and we can get on with the "real" work. The surveillance audits have helped to keep the BMS in the forefront.

There is the transition from ISO to BMS in the GRC culture. These are BMS procedures—not ISO procedures. It took a long time to get people up to speed with the ISO effort at the center. Now, we have the change from ISO to BMS to complete. The way BMS was originally pitched was that ISO procedures were a sub-set of the entire BMS. So, we focused main efforts on the applicable ISO requirements for certification, and included the other parts secondarily. All are important as these are the processes by which we operate.

Finally, there is the challenge of continuous improvement in Document and Data Control. Issues to be addressed include documentation interfaces, completion of records for CLPs and LLPs, lab-wide consistent metrics, and annual review of documentation.

GRC has been through two (2) surveillance audits, and there is evidence the quality system is improving. The document control system has been a big success and has been working across the lab. Document and Data Control has come a great distance at GRC. I believe CM and DM have been more apparent to a larger number of GRC personnel. The bottom line: ISO cannot be accomplished or maintained without good CM and DM—in any environment.

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